

$$\textcircled{1} \quad \frac{10 + \frac{2}{x}}{1}$$

LCD: x

$$\frac{10x}{x} + \frac{2}{x}$$

$$\boxed{\frac{10x+2}{x} = \frac{2(5x+1)}{x}}$$

$$\textcircled{2} \quad \frac{2x}{3} - \frac{5}{1} \cdot \frac{3}{3}$$

LCD: 3

$$\frac{2x}{3} - \frac{15}{3}$$

$$\boxed{\frac{2x-15}{3}}$$

$$\textcircled{3} \quad \frac{\frac{x+2}{x+2} \cdot 1}{4} - \frac{6}{x+2} \cdot \frac{4}{4}$$

$$\text{LCD: } 4 \cdot (x+2)$$

$$\frac{x+2}{4(x+2)} - \frac{24}{4(x+2)}$$

$$\frac{x-22}{4(x+2)}$$

$$\textcircled{4} \quad \frac{\frac{1}{4}}{\frac{3}{5}}$$

$$\frac{1}{4} \div \frac{3}{5}$$

$$\frac{1}{4} \cdot \frac{5}{3} = \frac{5}{12}$$

$$\textcircled{5} \quad \frac{3x}{5} \div \frac{6}{20x}$$

$$\frac{\cancel{3}x \cdot \cancel{20}x}{\cancel{5} \cdot \cancel{2}6}$$

$$\boxed{2x^2}$$

$$\textcircled{6} \quad \frac{1}{2} \div \frac{10}{3(x-2)}$$

$$\frac{1}{2} \cdot \frac{3(x-2)}{10}$$

$$\boxed{\frac{3(x-2)}{20}}$$

$$\textcircled{1} \frac{\frac{x}{2} - 5}{6 + \frac{3}{x}}$$

$$\frac{\frac{x}{2} - 5}{1} \cdot \frac{2}{2} \div \frac{x}{x} \cdot \frac{6}{1} + \frac{3}{x}$$

LCD: 2

$$\frac{x}{2} - \frac{10}{2}$$

$$\frac{x-10}{2} \div$$

LCD: x

$$\frac{6x}{x} + \frac{3}{x}$$

$$\frac{6x+3}{x}$$

$$\frac{(x-10)}{2} \cdot \frac{x}{\cancel{6(2x+1)}} \cdot \frac{1}{3(2x+1)}$$

$$\boxed{\frac{x(x-10)}{6(2x+1)}}$$

$$\textcircled{2} \quad \frac{20}{x+1}$$

$$\frac{1}{4} - \frac{7}{x+1}$$

$$\frac{20}{\cancel{(x+1)}} \cdot \frac{4\cancel{(x+1)}}{(x-27)}$$

$$\frac{80}{x-27}$$

$$\frac{20}{x+1} \div \frac{\cancel{(x+1)}^1}{\cancel{(x+1)}_4} - \frac{7}{x+1} \cdot \frac{4}{4}$$

$$\text{LCD: } 4 \cdot (x+1)$$

$$\frac{x+1}{4(x+1)} = \frac{28}{4(x+1)}$$

$$\downarrow$$

$$\frac{20}{x+1} \div \frac{x-27}{4(x+1)}$$

$$\textcircled{3} \quad \frac{1}{2x^2-2} \div \frac{\cancel{x-3} \cdot 2}{\cancel{x-3}(x+1)} + \frac{x}{\cancel{x^2-2x-3}}$$

$$(x-3)(x+1)$$

$$\text{LCD: } (x+1)(x-3)$$

$$2(x-3) + \star$$

$$\frac{2x-6}{(x+1)(x-3)} + \frac{x}{(x-3)(x+1)}$$

$$\frac{1}{2x^2-2} \div \frac{3x-6}{(x+1)(x-3)}$$

$$\frac{1}{2(\cancel{x+1})(x-1)} \cdot \frac{(\cancel{x+1})(x-3)}{3(x-2)} = \boxed{\frac{(x-3)}{6(x-1)(x-2)}}$$

$$\textcircled{4} \frac{1}{\cancel{(x+1)(x-1)} X} - \frac{X}{\cancel{(x+1)(x-1)}} \cdot \frac{\cancel{X}}{\cancel{X}} = \frac{3}{X}$$

$$\text{LCD: } X \cdot (x+1)(x-1)$$

$$\frac{X^2 - 1}{X(x+1)(x-1)} - \frac{X^2}{X(x+1)(x-1)}$$

$$\frac{-1}{X(x+1)(x-1)} \cdot \frac{3}{X}$$

$$\frac{-1}{\cancel{X}(x+1)(x-1)} \cdot \frac{\cancel{X}}{3}$$

$$= \boxed{\frac{-1}{3(x+1)(x-1)}}$$

$$\textcircled{5} \quad \frac{1}{4x+3} - \frac{5}{3(4x+3)} \div \frac{x}{4x+3}$$

$$\text{LCD: } 3(4x+3)$$

$$\frac{3}{3(4x+3)} - \frac{5}{3(4x+3)}$$

$$\frac{-2}{3(4x+3)} \div \frac{x}{4x+3}$$

$$\frac{-2}{3(4x+3)} \cdot \frac{\cancel{(4x+3)}}{x} = \frac{-2}{3x}$$

$$\textcircled{6} \quad \frac{4}{\cancel{x^2-9}} + \frac{3}{x-3} \cdot \frac{x+3}{x+3} \div \frac{1}{x+3} \cdot \frac{x-3}{x-3} + \frac{1}{x-3} \cdot \frac{x+3}{x+3}$$

$(x+3)(x-3)$

$$\text{LCD: } (x+3)(x-3)$$

$$\text{LCD: } (x+3)(x-3)$$

$$\frac{4}{(x+3)(x-3)} + \frac{3x+9}{(x+3)(x-3)} \div \frac{x-3}{(x+3)(x-3)} + \frac{x+3}{(x-3)(x+3)}$$

$$\frac{3x+13}{(x-3)(x+3)} \div \frac{2x}{(x-3)(x+3)}$$

$$\frac{3x+13}{\cancel{(x-3)}\cancel{(x+3)}} \cdot \frac{\cancel{(x-3)}\cancel{(x+3)}}{2x} =$$

$$\frac{3x+13}{2x}$$